

**REMARKS**

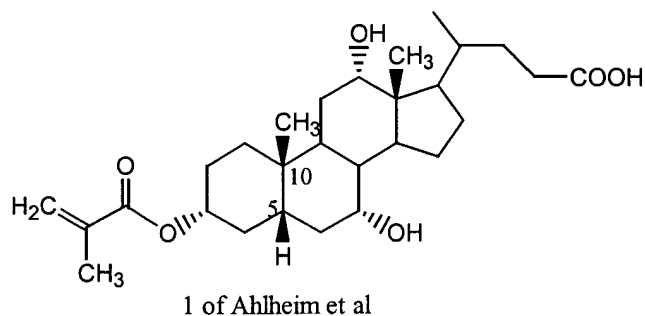
In the present Amendment, claim 1 has been amended to recite --R<sub>3</sub> represents a hydrogen atom when R<sub>1</sub> and R<sub>2</sub> each represents a hydroxyl group--. This amendment is supported by the cancelled claim 10 and corrects an inadvertent omission in the previous Amendment. Claim 1 has also been amended to correct typographical and/or grammatical errors, including re-introducing (for purposes of consistency with the preamble of each dependent claim) a preamble recitation added in the Amendment filed August 23, 2000 but inadvertently omitted in the subsequent Amendments.

No new matter has been added, and thus entry of the present Amendment is respectfully submitted to be proper. Upon entry of the Amendment, claims 1-3 and 5-9 will be all the claims pending in the application.

At page 3 of the Office Action, the specification was objected to as allegedly containing new matter.

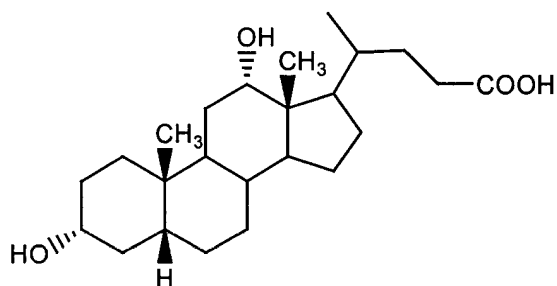
Applicants respectfully traverse the objection, because an amendment to correct an obvious error with a correction recognized by one skilled in the art to be appropriate, and does not constitute new matter. In this case, one skilled in the art would not only recognize the existence of error in the specification, but also the appropriate correction.

Specifically, with regard to the compound of Ahlheim et al, the Examiner is kindly directed to structure 1 in Ahlheim et al (page 779). It is clear from structure 1 in Ahlheim et al that hydrogen at the 5-position is  $\beta$  (meaning pointing out of paper), and cis to the Me group at the 10-position.

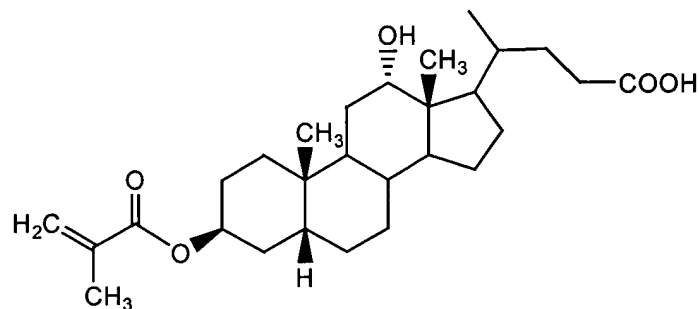


With regard to the structure of the present invention, Applicants submit that one skilled in the art would recognize the existence of error in the specification, and the appropriate correction, from the starting materials. As described in Examples, each of the compounds in Examples 1-8 was synthesized from cholic acid or its derivative having the  $5\beta$ -cholanolic acid skeleton. For the Examiner's convenience, Applicants herewith provide the structures of all the starting materials and the corrected structures of the corresponding products.

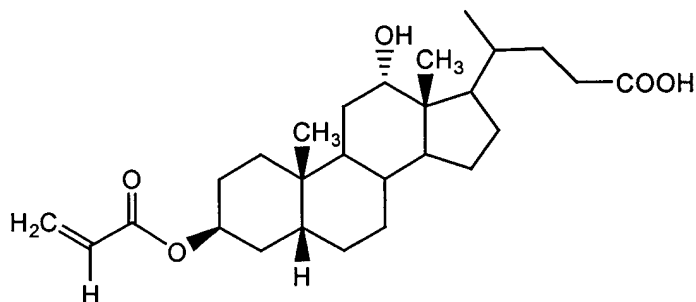
The starting material in Examples 1 and 2 (deoxycholic acid):



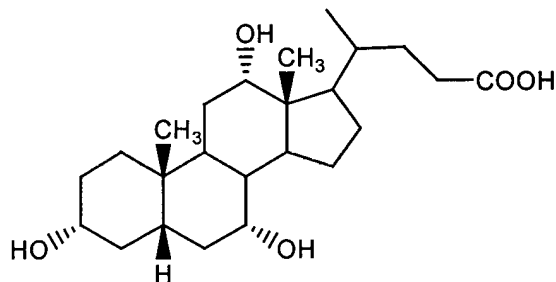
The obtained material in Example 1:



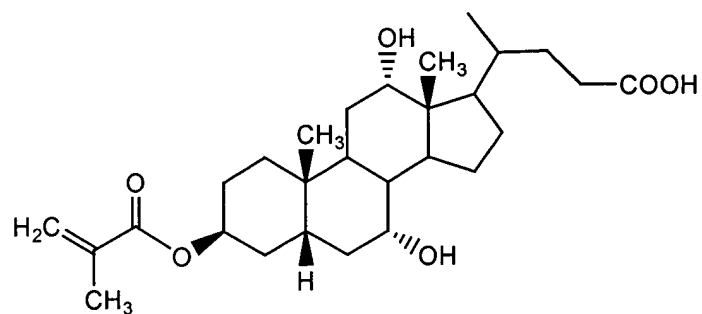
The obtained material in Example 2:



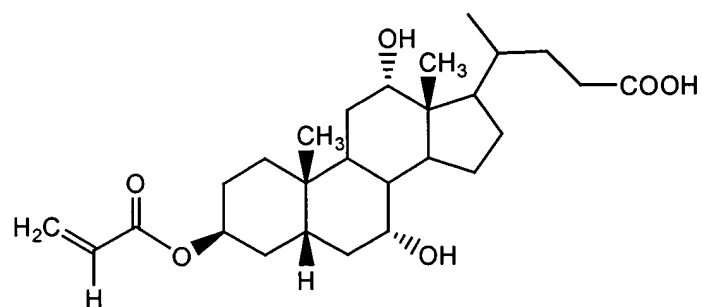
The starting material in Examples 3 and 4 (cholic acid):



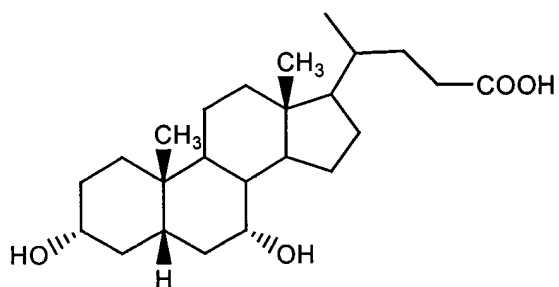
The obtained material in Example 3:



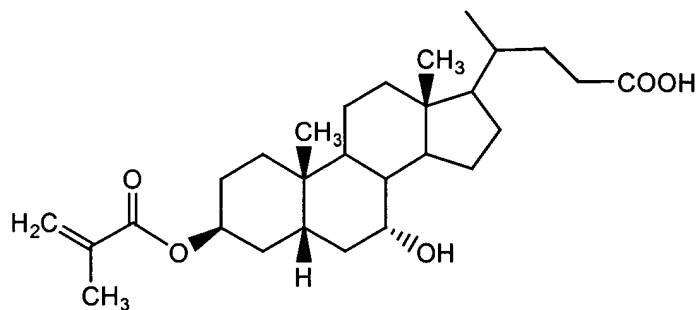
The obtained material in Example 4:



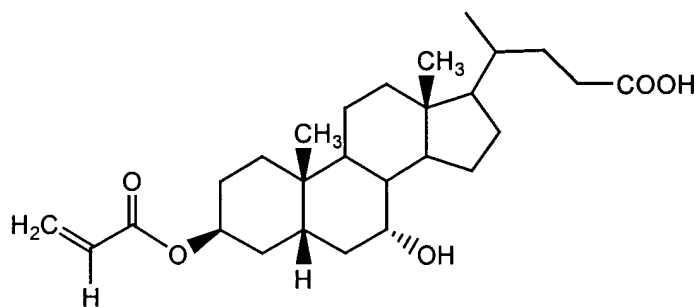
The starting material in Examples 5 and 6 (chenocholic acid):



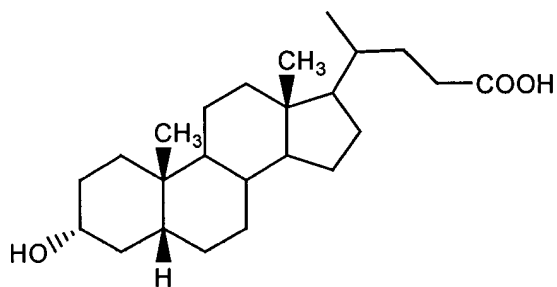
The obtained material in Example 5:



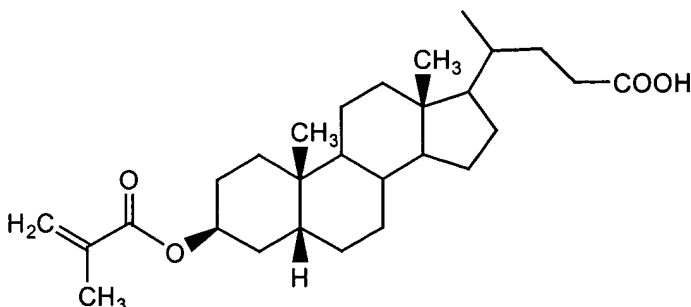
The obtained material in Example 6:



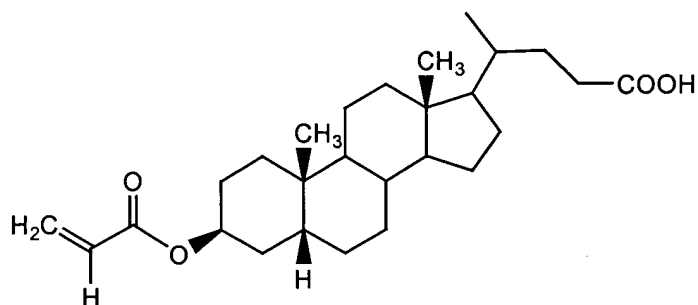
The starting material in Examples 7 and 8 (lithocholic acid):



The obtained material in Example 7:



The obtained material in Example 8:



In view of the above, the amendments do not constitute new matter, and thus the objection should be withdrawn.

At page 3 of the Office Action, claim 1 was rejected under 35 U.S.C. § 112, first paragraph, as allegedly lacking written description.

Applicants respectfully traverse the rejection for the same reasons above. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection.

At page 5 of the Office Action, claim 1 was rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ahlheim et al (Makromol. Chem. 193(3), p.779-797).

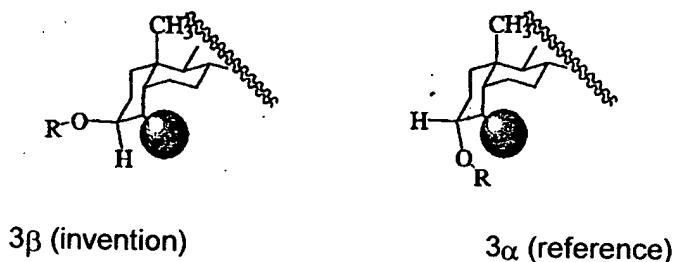
Applicants respectfully traverse the rejection. Applicants have established the patentability of the present invention, by the arguments submitted in the form of a Declaration under 37 C.F.R. § 1.132, and those set forth in the Remarks of the Amendment of May 14, 2003, with regard to the difference in configuration at the 3-position between the presently claimed compound and the compound disclosed in Ahlheim et al, and the difference in results. The Examiner does not rebut Applicants' arguments.

Specifically, in the Declaration, the present invention (in particular, the compound of claim 5) and the closest example of Ahlheim et al (compound 2) are compared. The unexpectedly superior results of the present invention are shown in a side-by-side comparison table, as suggested by the Examiner in the Office Action of January 14, 2003.

As is clear from the Table, the monomer compound of the present invention can be polymerized to obtain a resin and enables to control the molecular weight of the resin. In contrast, the compound of Ahlheim et al, which has a different structure from the monomer compound of the present invention, cannot be polymerized and the resin cannot be obtained. There is nothing in Ahlheim et al. which would cause one of ordinary skill in the art to expect the superior results obtained with the compounds of the present invention.

Further, Applicants submit that the configuration at the 3-position has a significant effect on the reactivity of the compounds, i.e., the reactivity of the 3 $\alpha$ -hydroxymethacrylate ester in Ahlheim et al differs greatly from that of the 3 $\beta$ -hydroxyacrylate ester and 3 $\beta$ -hydroxymethacrylate ester in the present invention. Applicants found that the compounds in the

3 $\alpha$ -form have a lower reactivity. Applicants believe that the steric exclusion due to the adjacent methylene structure at the 2- and 4-positions contributes to the low reactivity.



Still further, the difference between 3 $\beta$  and 3 $\alpha$  compounds is very enormous from a technological point of view.

In view of the above, the present invention is not obvious over Ahlheim et al, and thus, the Examiner is respectfully requested to reconsider and withdraw the rejection.

At page 6 of the Office Action, claims 2, 3 and 5-9 were objected to as allegedly being dependent from a rejected base claim.

Applicants respectfully traverse the objection. As set forth above, Applicants believe that the objection and rejection of claim 1 from which claims 2, 3 and 5-9 depend, have been overcome. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the objection to claims 2, 3 and 5-9.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.



AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Appln. No. 09/275,941

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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WASHINGTON OFFICE

**23373**

CUSTOMER NUMBER

Date: October 15, 2003



PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: :  
Kenichiro Sato et al. : Group Art Unit: 1623  
Appln. No.: 09/275,941 : Examiner: OH, TAYLOR V  
Filed: March 25, 1999 :

For: NOVEL (METH)ACRYLIC ACID ESTER COMPOUND

DECLARATION UNDER 37 C.F.R. §1.132

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

I, Kenichiro Sato, do declare and state as follows:

I am a citizen of Japan.

I graduated from Osaka University, Faculty of Engineering, Course of Applied Fine Chemistry in March 1992.

Since April 1992 I have been employed by Fuji Photo Film Co., Ltd. and have been engaged in research and development of photoresist photosensitive materials for semiconductors at the Yoshida-Minami Factory Research Division of the company.

I am a co-inventor of the invention described and claimed in the above-named application, and I am familiar with the subject matter disclosed by the application as well as the Office Action dated January 14, 2003 concerning the application.

In order to demonstrate the unexpected superiority of the present invention, the following experimentation was conducted by me or under my supervision.

### EXPERIMENTATION

#### Synthesis of the resin using the monomer compound of the present invention (the monomer compound of claim 5)

9.2 of the monomer compound of claim 5 of the present invention, 250 mg of a radical polymerization initiator V-65 (manufactured by Wako Pure Chemical Industries, Ltd.) and 30 mg of mercaptoacetic acid were dissolved in a mixture of 29 g of N,N-dimethylacetoamide and 4 g of tetrahydrofuran. The mixture was then added dropwise with a drop time of 4 hours to 4 g of N,N-dimethylacetoamide heated to 60 °C, under a nitrogen atmosphere. The solution was heated and stirred over 4 hours and after the solution was cooled to a room temperature, the solution was charged into 1 liter of distilled water, and thus 8.9 g of the target resin was recovered in a white color powder form. The resin had a weight-average molecular weight of 16,000 in polystyrene conversion.

#### Synthesis of the resin using the monomer compound 2 of Makromol. Chem. 193(3), pp. 779 to 797 (Ahlheim et al)

The monomer compound 2 described at the top of page 781 of Makromol. Chem. 193(3) was prepared and then polymerization was attempt in the same conditions as the above. The monomer compound was unchanged as it was and recovered.

The results above are arranged in Table below.

TABLE

	Monomer (g)	Resin (g)	Mw *
Invention	Monomer of claim 5 (9.2)	8.9	16,000
Ahlheim et al	Monomer compound 2 (9.2)	—	—

Mw \*: Weight-average molecular weight (in polystyrene conversion)

As is apparent from the results above, the monomer compound of the present invention can be polymerized to obtain a resin and enables to control a molecular weight of a resin. The monomer compound of Ahlheim et al that has a different structure from the monomer compound of the present invention cannot be polymerized and the resin cannot be obtained from the monomer. As is apparent from the above, the monomer compound of the present invention has a specified effect.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectively submitted,

Date: May 9, 2003

Kenichiro Sato

Kenichiro Sato